

## ABSTRACT

The present invention provides bacterial immunogenic agents for administration to humans and non-human animals to stimulate an immune response. Also provided are methods for vaccination of mammalian species, especially human patients, with variants of the *E. coli* FimH protein, said variants being derived from different strains of *E. coli*, and to production of antibodies that protect the vaccine recipient against infection by pathogenic bacterial species. In another aspect the invention provides antibodies against such proteins and protein complexes that may be used as diagnostics and/or as protective/treatment agents for pathogenic bacterial species. A plasmid-based method of producing polypeptides, especially fused polypeptides, such as the complex of a bacterial chaperone and a bacterial adhesin, is also disclosed.